

or primitive type of various families, and especially of groups of families or orders.

We see how comparatively primitive forms of plants and animals have persisted through geological ages alongside with the evolution of higher groups. We may well believe that also in the flowering plants primitive forms persist in the various groups. Improved knowledge of fossils, of development, of comparative morphology of related families, will establish these forms; from the present diversity of opinion true ideas as to the actual course of plant evolution will doubtless gradually emerge.

BROOKLYN BOTANIC GARDEN

### Revision of the Genus *Crocidium*\*

HAROLD ST. JOHN

Among the many unique and interesting plants discovered in Northwest America by David Douglas, was a little yellow annual Composite. He found it near Fort Vancouver, now Vancouver, Washington, on the Columbia River. From there upstream for a hundred miles it is one of the commonest early spring flowers. Though the individual plants are small and few flowered, it grows in such abundance on the sandy flats near the river as to change their color from the pale yellow of the sands to the rich golden yellow of the flowers. Sir. W. J. Hooker described this plant as a new genus and species, *Crocidium multicaule* during the very year of the tragic death of Douglas in the Hawaiian Islands. Since its publication in 1834, *Crocidium* has remained a monotypic genus.

The first hint that there might be more than one species involved came while making some dissections for drawings. A study of both fresh and dried material available soon added evidence. The writer then asked the loan of material from other herbaria, and here wishes to gratefully acknowledge this courtesy and assistance from the curators of the following herbaria. The abbreviations listed are used in the citation of specimens to indicate the herbarium in which they can be found.

\* Contribution from the Botany Department of the State College of Washington, No. 14.

(BC) Provincial Museum of Natural History, Victoria, B. C., Canada.

(G) Gray Herbarium, Harvard University, Cambridge, Mass.

(O) University of Oregon, Eugene, Ore.

(OAC) Oregon Agricultural College, Corvallis, Ore.

(S) W. N. Sucksdorf Herbarium, Bingen, Wash.

(WSC) State College of Washington, Pullman, Wash.

(WU) Willamette University, Salem, Ore.

✓ **Crocidium pugetense** St. John, n. sp., small annual herbaceous plant, 0.5–2.5 dm. high; stems one to several, slender, terete, glabrous but for the tuft of wool in the leaf axils, naked and scape-like above; basal leaves numerous and rosulate, spatulate somewhat fleshy, entire or dentate, glabrous; cauline leaves clothing the lower half of the stem, small linear entire or somewhat dentate or lobed, glabrous except for the conspicuous tuft of wool in the axil, 3–15 mm. long, about 1 mm. wide; heads hemispherical; bracts 9–12, oblong- or ovate-lanceolate, connate below, in one series but the bases of each alternate one overlapping the intervening ones, lanate at the tip otherwise glabrous, 4–7 mm. long, 2–3 mm. broad; ray-flowers as many as the involucre bracts, yellow pistillate, achenes narrowly and asymmetrically ellipsoid, 5-ribbed, crisp-puberulent between the ribs, these hairs on wetting emitting mucilaginous spiracles, 2 mm. long, pappus wanting, corolla tube slender, distended at base, 1.5–2.3 mm. long, the blade elliptic-lanceolate, 7–10 mm. long; disc-flowers yellow numerous, achenes oblanceolate-ellipsoid 5-ribbed brown, crisp puberulent between the ribs, the hairs on wetting emitting mucilaginous spiracles, pappus bristles scaberulous, about 30, white, persistent or tardily deciduous, equaling the corolla, corolla tube very slender, almost filiform, distended at base, 0.1–0.2 mm. wide, 2–4 mm. long, limb campanulate, the lobes erect or slightly spreading, 2.2 mm. long, stamens and stigmas well included in the throat.

Herba annua, floribus ligulatis cum tubo filiforme nudo, floribus disci cum setis scaberulis, tubo filiforme 2–4 mm. longitudine.

BRITISH COLUMBIA: Saanich Arm, Vancouver Island, May 6, 1919, *J. R. Anderson* (WSC); Mount Finlayson, May 6, 1908, *J. Macoun* 88378 (G; BC); rocks, Saanich Arm, April 19, 1897, *J. R. Anderson* 207 (BC); sea beach, Parksville, May 4, 1900, *J. R. Anderson* 207 (BC); on rocks, Shewanigan Lake, April 24, 1915, *M. St. Barbe* 5113 (BC).

WASHINGTON: sandy banks, Whidby Island, April 17, 1897, *N. L. Gardner* 183 (Type in Herb. State College of Washington); Orcas Island, Oregon

Boundary Commission, 1858, *Dr. Lyall* (G); prairie, Tacoma, April 1, 1896, *J. B. Flett* 79 (WSC); Washington Territory, *Dr. Cooper* (G). (In Cooper's report, *Pac. R. R. Repts.* 12: pt. 2, 65. 1860, he states that he found this species at Straits de Fuca, and at Steilacoom. It is still known at the latter place, but has not been recollected at the Straits.)

✓ **C. multicaule** Hook., *Fl. Bor. Am.* 1: 335, Tab. CXVIII. 1834. This original species follows the Columbia River from Vancouver up at least as far as Kennewick, up the Umatilla River to the foothills of the Blue Mts., up the Walla Walla River to Touchet, up the Touchet River to Waitsburg, up the Yakima River and its tributaries as far as Cowiche, and ten miles beyond Ellensburg. It is found at Baker City and in southern Oregon, and from a half dozen stations in central and northern California. The various collections from southern Vancouver Island and from Puget Sound are here separated as a distinct species. This destroys one of those interesting cases of Arid Transition plants reported to occur on the sandy prairies in western Washington, with the great barrier of the Cascade Mts. and the humid evergreen forest lying between. Yet, it leaves each of the species with a natural distribution. The original species, *Crocidium multicaule* can be recognized by its ray flowers with scaberulous pappus bristles equaling the corolla tube and early deciduous, the disc flowers with similar pappus scarcely exceeding the tube, the tube short and cylindrical, but distended at base when dried, 0.4 mm. wide, 1–1.6 mm. long, the campanulate limb 1.4–1.6 mm. long with reflexed lobes, and the stamens and stigmas well exerted from the throat. The writer is quite aware that Hooker originally described this genus and species as having the ray achenes naked, "*radii nuda*" on page 335, and so illustrated them, (*Fl. Bor. Am.* 1: tab. CXVIII, fig. 6. 1834); and that this treatment has been followed and maintained by A. P. de Candolle, Gray, Bentham & Hooker, Engler & Prantl, Howell, Piper & Beattie, Rydberg, and Jepson. Through the courtesy of Dr. B. L. Robinson it has been possible to borrow and study the material of this genus in the Gray Herbarium. This includes one collection of three small plants labeled *Crocidium multicaule*, *Fl. Bor. Am.*, Hooker misit, Januar. 1835; and another of one medium sized plant labeled *Crocidium multicaule* Hook., Oregon (Hooker!). These are old, fragile, and somewhat damaged by insects, but they clearly are of the species so common on the Columbia River, and with the characters listed above. They are unquestionably portions of the type collection. Furthermore, though Douglas ascended the Chehalis River and portaged to the Cowlitz, he did not on his first trip to the Pacific Northwest reach Puget Sound, or Vancouver Island, where *C. pugetense* is now known to occur. The new *C. pugetense* may be distinguished by its ray flowers destitute of pappus, the disc flowers with

white scaberulous pappus equaling the corollas, the tube very slender and almost filiform but distended at base, 0.1–0.2 mm. wide, 1.5–4 mm. long, the campanulate limb 2.2 mm. long, with the lobes erect or slightly spreading and the stamens and stigmas well included in the throat.

The following specimens of *C. multicaule* have been examined:

WASHINGTON: Hooker misit, Fl. Bor. Am., Januar. 1835 (*David Douglas*, Fort Vancouver) (G); Cowiche ridge, Yakima Co., April 1, 1923, *Elias Nelson* 1210 (WSC); Ellensburg, April 7, 1897, *K. Whited* 262 (WSC); dry east slope, Foothills of Blue Mountains, May 1, 1897, *R. M. Horner* 165 (WSC); hill-sides, Waitsburg, May 7, 1898, *R. M. Horner* R165B298 (G); near Ellensburg, May 4, 1896, *K. Whited* 64 (WSC); dry sagebrush flat, alkaline, Touchet, Walla Walla Co., April 5, 1923, *H. St. John*, *W. J. Hardy*, *F. Warren* 9283 (WSC); dry rocky slopes near Walla Walla River, Reese, Walla Walla Co., April 5, 1923, *H. St. John*, *W. J. Hardy*, *F. Warren* 9284 (WSC); Stevenson, Skamania Co., March 28, 1927, *Nancy Wallace* (WSC); dry side hill, Ellensburg, April 8, 1898, *K. Whited* 607 (OAC); hillsides, Columbia River, W. Klickitat Co., April 4, May, 1882, *W. N. Suksdorf* 373 (S; O); Lake River, Clark Co., April 12, 1894, *W. N. Suksdorf* 9923 (S); rocks, river bank, Bingen, Klickitat Co., April 24, 1899, *W. N. Suksdorf* 9978 (S); on Bingen Mt., lower part, Klickitat Co., April 15, 1918, *W. N. Suksdorf* 10008 (S); Rockland, Klickitat Co., May 10, 1899, *W. N. Suksdorf* 9983 (S); steep grassy slopes, 1200 ft., Mt. Hamilton, May 27, 1919, *M. W. Gorman* 4523 (WSC).

OREGON: The Dalles, Wasco Co., April 4, 1902, *E. P. Sheldon* 10015 (WSC;G;O); moist bank, The Dalles, April 7, 1914, *M. E. Peck* 3986 (G); Hermiston, spring 1919, comm. *J. H. Lovell* (G); on the Umatilla River in the Blue Mts., April 4, 1910, *W. C. Cusick* 3412 (G; WSC; WU); on rocks, Dalles, April 11, 1903, *J. Lunnell* 15 (G); Oregon, *Nuttall* (G); Oregon, Hooker, (probably either *Douglas* or *Nicholas Garry*) (G); on moist prairies, Mosier, April 15, 1892, *T. J. Howell* 742 (WSC); Hood River, June 1, 1883, *Mrs. Dr. Barret* (G); Baker City, 1875, *R. D. Nevius* (G); hills north of Corvallis, Mar. 26, 1911, *L. H. Griffin* (OAC); stony soil, sagebrush, 4800 ft., Horsefly Valley, Lorella, May 20, 1917, *J. O. Stewart* 20 (OAC); common, Pacific Coast Plants, April 15, 1881, *T. J. Howell* (OAC); on open hillsides, Eastern and Southern Oregon, April 10–May 6, 1886, *L. F. Henderson* 540 (OAC); sandy and rocky slopes, Hood River, April 16, 1922, *M. W. Gorman* 5602 (WSC); Ashland Butte, May 6, 1887, *L. F. Henderson* (O); moist hillside, Eugene, April 24, 1906, collector unknown (O); Latourelle Falls, Multnomah Co., April 21, 1903, *E. P. Sheldon* 11917 (O); Devil's Canyon, near Bridal Veil, Columbia River, April 20, 1889, *L. F. Henderson* (O); Trail, Feb. 12, 1927, *Wm. Sherwood* 969 (WU); Madras, Jefferson Co., March 29, 1924, *M. E. Peck* 13170 (WU); mouth of Des Chutes River, April 1915, *S. G. Jewett* 6749 (WU); moist bank along Columbia River, The Dalles, April 7, 1914, *M. E. Peck* 3986 (WU); Ashland, March 1924, *Wm. Sherwood* 13498 (WU); open ground, Grants Pass, April 9, 1910, *Gerald Prescott* 1382 (WU); Hood River, April 3, 1926, *J. W. Thompson* 666 (WU); La Grande, March 15, 1926, *Ben Bailey*



736 (WU); Forest Grove, *Jos. W. Marsh* (WU); Myrtle Creek Canyon, Douglas Co., April 7, 1927, *J. W. Thompson* 2049 (WU); Summit of the Siskiyou Mts., south of Ashland, April 11, 1927, *J. W. Thompson* 2189 (WU).

IDAHO: The species is commonly credited to this state. No evidence to confirm this exists in the U. S. National Herbarium, the New York Botanical Garden, or any of the herbaria cited. The only possible specimen seen is one from Clear Water, Oregon, *Rev. Mr. Spalding* (G). The plant has not been found since near Fort Lapwai or Spalding, Idaho, where Mr. Spalding lived and collected most of the specimens. However, he made several trips to Walla Walla to visit his friend and fellow missionary Whitman. It seems likely that Spalding found the plant on one of these journeys, as the plant is extremely abundant and showy in the vicinity of Walla Walla and along the Touchet River. It is unlikely that if this attractive little plant grew in the region of Lapwai, that it would have escaped the attention of the considerable number of botanists who have lived and worked in Pullman, Wash., or Moscow, Idaho. *Balsamorhiza Careyana* Gray presents a similar case. Dr. Gray described it from a Spalding specimen, labeled "Sandy plains, Clear Water, on the Kooskooskie." This big showy Balsamroot does not now grow nearer than the mouth of the Palouse River, about a hundred miles to the westward. All of the specimens collected by the Rev. Mr. Spalding were given the uniform printed label, "Clearwater, Oregon."

CALIFORNIA: common on barren spots, Kneeland Prairie, altitude 2500 ft., May 4, 1913, *J. P. Tracy* 4048 (G); Red Mt., Mendocino Co., May 21-28, 1902, *Alice Eastwood* (G); Surprise Valley, N. E. Cal. *Lemmon* (G); Camp Blaisdell, 1879, *Dr. W. Matthews* (G); Lassen Co., June 1878, *Mrs. R. M. Austin* (G); abundant, miles of plains and hillside yellow with it, from April 1, Yreka, Siskiyou Co., April 18, 1876, *E. L. Greene* 703 (G); Mariposa, April 1888, *J. W. Congdon* 501 (G).

STATE COLLEGE OF WASHINGTON, PULLMAN, WASHINGTON.

## BOOK REVIEWS

### Common Wild Flowers of Pennsylvania\*

Having previously acquired an expert knowledge of the flora of Western Pennsylvania, Dr. Gress became State Botanist in 1920 and has since become well qualified to make a judicious selection of the representative common wild flowers of the State. The "Common Wild Flowers of Pennsylvania" is an attractively printed, paper bound book of 121 pages, illustrated by a plate of plant and flower parts and by 61 half-tones of flowers

\* Common Wild Flowers of Pennsylvania. Ernest M. Gress, Ph.D. Times Tribune Co., Altoona, Pa. 121 pp., 5½ by 8 in., paper bound. (75 cts. postpaid.)